The Effect of Providing On-site Technical Assistance for Toxics Use Reduction: A Program Evaluation Utilizing Toxics Use Reduction Act Data

Fact Sheet

This study estimates that 500 million pounds have been reduced from what was expected.

The total amount of chemicals used in this state has remained relatively unchanged – it was 1.2 billion at the beginning of the study and it's about 1.2 billion now. But production has changed (during the 1990's it greatly increased). Companies have entered the system. The list of chemicals regulated by TURA expanded. When you put all of that together, we would have expected 1.7 billion chemicals to be used. But instead we have about half a billion pounds less than that.

This is an estimate. You can't really measure what didn't happen. There are various ways to construct an estimate of what would likely have happened if there had been no TURA program. This is the result of one way to that estimate – and we think it is a conservative method.

The TURA program has had a real impact.

That it is a nice round number, 500 million, is because this is a rough estimate. It is impossible to measure what never happened. We use the production figures that companies themselves supply. And the program has done a lot of outreach, and data quality checking, and guidance, on how to come up with those production ratios. It's the best information we have available.

How did the reductions come about?

1. Companies may have been motivated by the fact that, while in the system, they have to pay a fee for chemical use, and they have to develop plans for toxics use reduction. Also, they report to the public on how much they use. These may motivate them to try to get below threshold and not have to report, pay fees, or do plans.

2. Some were helped by OTA to learn about TUR options. It is important to note that OTA did not implement these reductions. It was the companies themselves who did the work. In all cases, it was the companies themselves who decided exactly what to do. All OTA did was to facilitate the process. We gave them ideas, and they applied them to their situation. They contacted consultants, bought equipment, and often did something different from what we suggested. Our study found that companies visited by OTA had significant performance improvements after being visited:

    a. The visited companies had 9.4% - nearly 10% - greater reductions in toxics use after being visited, than before. We found this number after putting together thousands of data points, and a statistical test confirmed that the difference was significant.

    b. The visited companies had more "advancers" – 65% of those visited "advanced" – that is, they did better than before. Only 55% of companies not visited were "advancers".

c. The visited companies had less waste than those not visited. About ten percent of the chemicals used by visited companies became waste products. For those not visited by OTA, the average was about 20 percent.

d. More visited companies dropped out of the system because they did toxics use reduction (as opposed to shutting down, moving out of state, or discontinuing the product), than those not visited. The companies that were visited were about 1.7 times as likely to have dropped below reporting thresholds because they did TUR, than those who were not visited.

e. These various ways of looking at the data all show the same result – that though the whole population of TURA-regulated companies seemed to have improved their performance, visited companies improved their performance even more than those not visited.

How much did OTA help reduce?

1. Again, this is just an estimate, what we think is the best method out of a number of ways to do it – and what we think is fairly conservative. We had enough data to look closely at a six-year period, and during that time we estimate that companies helped by OTA used about 63 million pounds less than they would have used if not visited. We calculated this by estimating what we expected them to be using, projecting amounts of use according to their production changes, and then applying that 9.4% "before and after" difference.

2. In order to understand better how these reductions occurred, it is necessary to do more data analysis, and to learn the individual stories of what happened at the companies. This study does not do that. We have some case studies and are developing more, which illustrate what has happened in OTA visits.

This report is a comparative analysis.

Although we have produced estimates of total reductions, we provide those numbers as illustrations. They are not hard and fast. They give an idea of what the reductions might have been. They leave out a lot: they don't include companies that OTA has helped that are not covered by TURA – and they don't include the early years of the program, when reductions were probably very high because many companies were being introduced by OTA to pollution prevention concepts for the first time – and doing the projects with the most dramatic gains first.

But we do have a lot of confidence in the comparative analysis.

Whatever problems there might be with the data are probably shared by both visited and not visited groups. We have a rather large data set and thousands of data points. We cut the data several different ways. When we looked at who dropped out of the program, we used an entirely different data set. And yet when we looked at the data from all these different viewpoints, we kept coming up with the same answers: being covered by the TURA act seems to have generally caused companies to reduce toxics use, but if you were visited by OTA, you reduced substantially more.

Quality Control

To test our findings, we submitted our data to an independent researcher at Boston University, an econometrician. He did the complex computer program runs that econometricians do, using regressions to the mean, and analyzing statistical significance, and he too found that visits from OTA seem to have made a difference.

We submitted all of our work to review by experts, and we presented to some of the foremost environmental economists and scientists in the world. They helped us to refine our analyses and ready it for publication.

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